Jc978 U.S. PTO
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CLAIMS

WHAT IS CLAIMED IS:

1. A fiber optic connector system for connecting at least one optical fiber cable mounted near the edge of a planar substrate through a backplane, each optical fiber cable including a plurality of optical fibers and a terminating ferrule, the longitudinal orientation of the optical fibers within the terminating ferrule defining a longitudinal axis and a forward direction, the ferrule having a first longitudinal range of motion x_1 and a ferrule spring element having a longitudinal ferrule spring force f_n, the optical connector system comprising:

a substrate housing assembly mounted on the planar substrate including at least one ferrule receiving cavity for receiving the optical fiber ferrule;

a substrate housing assembly spring, the substrate housing assembly having a second longitudinal range of motion, the housing assembly spring controlling movement of the housing assembly along the second longitudinal range of motion and having a longitudinal housing spring force h, wherein

$$h = \sum_{n}^{n} f_n$$

2. The connector system of claim 1, wherein the housing assembly spring comprises a first and a second laterally spaced suspension spring members, the first and second suspension spring members allowing a range of angular movement of the housing assembly with respect to the planar substrate.

a plurality of individual housing spring members, wherein the summation of the

longitudinal spring forces of the individual housing spring members is greater than the summation of the longitudinal spring forces of the ferrule spring members.

4. A fiber optic connector system for connecting at least one optical fiber cable mounted near the edge of a planar substrate to a backplane member having a first surface and a second surface, the longitudinal orientation of the optical fibers defining a longitudinal axis, the optical connector system comprising:

a backplane housing assembly defining at least one longitudinal receiving cavity, the receiving cavity having a frontal opening along the first surface of the backplane member and a rear opening along the second surface of the backplane member;

a frontal door covering the frontal opening and a rear door covering the rear opening.

5. A bend radius control member for controlling the bend radius of an optical fiber cable comprising a deformation resistant heat-shrunk outer jacket wrapped around the optical fiber cable, wherein the heat- shrunk outer jacket has a desired bend radius curvature.

6. A method for controlling the bend radius of at least a portion of an optical fiber cable having at least one optical fiber, the method comprising the steps of:

a. providing a jacket of a heat shrinkable-material;

b. placing the jacket around the portion of the optical fiber cable;

c. bending the optical fiber cable at a desired bend angle; and

d. shrinking the jacket around the optical fiber cable by the application of heat.

7. [illegible]

longitudinal orientation of the optical fibers within the terminating ferrule defining a longitudinal axis and a forward direction, the ferrule having a first longitudinal range of motion x_1 and a ferrule spring element having a longitudinal ferrule spring force f_n, the optical connector system comprising:

a substrate housing assembly mounted on the planar substrate including at least one ferrule receiving cavity for receiving the optical fiber ferrule;

a substrate housing assembly spring, the substrate housing assembly having a second longitudinal range of motion, the housing assembly spring controlling movement of the housing assembly along the second longitudinal range of motion and having a longitudinal housing spring force h, wherein

$$h > \sum_1^n f_n ;$$

a backplane housing assembly defining at least one longitudinal receiving cavity, the receiving cavity having a frontal opening along the first surface of the backplane member and a rear opening along the second surface of the backplane member;

a frontal door covering the frontal opening and a rear door covering the rear opening.